REMARKS

The Examiner is thanked for the thorough examination of the present application, and for correctly indicating the allowability of the subject matter of Claims 3-8, 15-19, 22-24, and 32-34. In view of the arguments presented in detail below, it is submitted that all of the claims are patentable.

I. The Claimed Invention

The present invention is directed to a wireless communications system. As recited in independent Claim 1, for example, the system includes a plurality of wireless communications devices each having a device type associated therewith from among a plurality of different device types, and each device type having a known device latency associated therewith. The system further includes a wireless device locator including at least one antenna and a transceiver connected thereto, and a controller for cooperating with the transceiver for transmitting a plurality of location finding signals to a target wireless communications device from among the plurality of wireless communications devices. The target wireless communications device transmits a respective reply signal for each of the location finding signals. Moreover, the controller of the wireless device locator is also for cooperating with the transceiver for receiving the reply signals, determining a propagation delay associated with the transmission of each location finding signal and the respective reply signal therefor based upon the known device latency of the target wireless

communications device, and estimating a range to the target wireless communications device based upon a plurality of determined propagation delays.

Independent Claim 14 is directed to a similar wireless communications system, independent Claim 20 is directed to a related wireless device location, and independent Claim 30 is directed to a related method for locating a target wireless communications device from among a plurality of wireless communications devices.

II. The Claims Are Patentable

The Examiner rejected independent Claims 1, 14, 20, and 30 over U.S. Patent Pub. No. 2004/0266348 to Deshpande et al. in view of U.S. Patent Pub. No. 2003/0191604 to Kuwahara et al. Deshpande et al. is directed to an apparatus and method to receive from a requesting device a request to share a capability of a sharing device located in the vicinity of the requesting device, and to compare presence information of the requesting device and the sharing devices to find a match. In particular, FIG. 3 shows a requesting device **300** which includes a locator **360**, i.e., a GPS locator, that provides a location of the requesting device to a server **200**. While the Examiner correctly acknowledges that Deshpande et al. fails to teach or fairly suggest determining propagation delays based upon reply signals and determining a range based thereon, he contends that Kuwahara et al. properly provides these noted deficiencies.

Kuwahara et al. is directed to a position calculation

method that calculates the position of a terminal, when errors are not distributed symmetrically for positive and negative values, by calculating the position of the terminal using the delay time of received signals. The method calculates a first range that is a difference between a range from the terminal to each antenna and a range from the terminal to a base antenna, the range being calculated from a wireless signal delay time. A second range is calculated that is a difference between a range from an assumed terminal position for calculation to each antenna and a range from the assumed terminal position for calculation to the base antenna. Furthermore, a likelihood of the position of the terminal is calculated, these procedures are repeated to obtain a point where the likelihood is maximized, and an obtained most likely solution is determined as the position of the terminal. See, e.g., paragraphs 0009-0010 of Kuwahara et al.

It is respectfully submitted that the selective combination of references proposed by the Examiner fails to teach or fairly suggest all of the recitations of the above-noted independent claims. More particularly, the Examiner contends that Kuwahara et al. teaches determining a propagation delay associated with the transmission of location finding signals and respective reply signals based upon a known device latency of target wireless communications device, and estimating a range to the target wireless communications device based upon the determined propagation delays as recited in the above-noted independent claims. As support, the Examiner points to the title, abstract, and paragraph 0001 of Kuwahara et al., which merely

notes that the disclosure is directed to a method for measuring the range between a transmitter or a receiver and a terminal engaging in wireless communications to calculate the position of the terminal from the range measurement result.

Yet, none of the text cited by the Examiner teaches how the position of the terminal is calculated from the range measurement result. However, as noted in paragraph 0002 of Kuwahara et al., the approach set forth therein is intended for Code Division Multiple Access (CDMA) systems. In CDMA systems, all of the CDMA stations are synchronized. As a result, a receiving station will know the exact time that a sending station sends its communications. This is how Kuwahara et al. estimates ranges to a sending station, as discussed in paragraphs 0031-0032 thereof:

> "**[0032]** The receiver **2** converts the frequency of a received signal to produce a baseband signal. The delay profile analysis apparatus **3** performs sliding correlation with a known signal sent from a base station using a matched filter to detect the timing of a received signal and to calculate the reception timing of the received signal. The transmission timing of a signal from a base station, which is known information defined for each base station, may be obtained from a center unit (not shown) connected via a base station unit or from a database in the terminal in which the correspondence between the transmission timing of a base station and a base station ID is stored.
>
> **[0033]** In addition, the delay profile analysis apparatus **3** calculates the difference between the calculated reception timing and the transmission

> timing of the base station to calculate the delay time required for propagation and then multiplies the delay time by the radio wave propagation speed (light velocity) to estimate the propagation range. In this way, the delay profile analysis apparatus **3** calculates a pseudo measured range." (Emphasis added)

Accordingly, Kuwahara et al. does not teach determining a propagation delay associated with the transmission of a location finding signal and a respective reply signal based upon a known device latency of a target wireless communications device. That is, the Kuwahara et al. approach merely looks at the time of transmission from a transmitting device and the time of reception at a receiving device, both of which are known, and then uses an estimated radio wave propagation speed (i.e., the speed of light) to estimate a position of the transmitting device based upon a difference between the known transmit and receive times. As such, Kuwahara et al. simply does not take into account any device latency of the transmitting terminal, nor a propagation delay associated with a "location" signal that prompts the transmitting terminal to send a reply. Thus, the proposed combination of reference fails to teach or fairly suggest all of the recitations of the above-noted independent claims.

In addition, the selective combination of Kuwahara et al. with Deshpande et al. is also improper because this combination would impermissibly change the principle of operation of the Deshpande et al. device. That is, each requesting device **300** is designed to self locate (i.e., via the GPS locator **360**)

and report its respective position information to the server **200**. However, to somehow apply the teachings of Kuwahara et al. to achieve the claimed invention would require the server **200** to instead attempt to locate the position of all of the requesting devices **300**, which may otherwise place an unacceptable processing burden on the server **200**, for example.

One of ordinary skill in the art would more likely have been taught away from attempting to combine the prior art as the Examiner proposes, as the two references teach different approaches for determining the positions of terminals, namely based upon GPS self-location or timing information in a synchronized CDMA network. That is, one of ordinary skill in the art would not have been motivated to apply a synchronous network signal timing calculation approach for range determination (i.e., the Kuwahara et al. approach) in a network where GPS locators are already built-in to requesting devices and their position information is already readily available (i.e., Deshpande et al.). This would simply add undue and unnecessary complexity, and those of ordinary skill in the art would accordingly have been taught away from doing so.

Accordingly, it is submitted that independent Claims 1, 14, 20, and 30 are patentable over the prior art. Their respective dependent claims, which recite yet further distinguishing features, are also patentable over the prior art and require no further discussion herein.

CONCLUSIONS

In view of the foregoing, it is submitted that all of the claims are patentable. Accordingly, a Notice of Allowance is respectfully requested in due course. Should any minor informalities need to be addressed, the Examiner is encouraged to contact the undersigned attorney at the telephone number listed below.

Respectfully submitted,

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